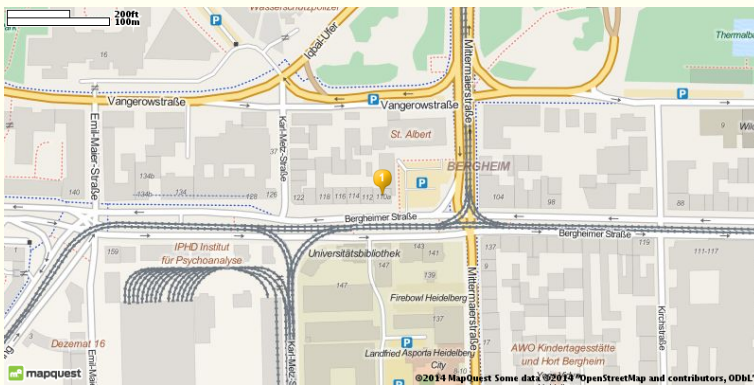


# getmap.sty

## v1.0

### A style file for downloading OpenStreetMap maps



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### **Abstract**

The goal of this package is the simplest possible provision of OpenStreetMap maps. In the simplest case, the specification of the address is sufficient. The package loads the map using the `\write18` feature, which you must activate to use this package. The image will be downloaded by an external Lua script. You can use this script, as well as the attached bash script also from the command line.

### **Acknowledgment**

I want to thank Norbert Preining, who did most of the recoding of `osmimage` (Bash  $\rightarrow$  Lua). Moreover many thanks to Taco Hoekwater, Reinhard Kotucha and Heiko Oberdiek for their valuable contributions.

## 1 Options

The following options can be used as package options with global scope, as well as options for the `\getmap` command with local scope!

### 1.1 `key` (Kmjtd|luu7n162n1,22=o5-h61wh)

The download script requires a key in order to use the service of MapQuest. By default, it uses the example key of the web page. Maybe this will not work forever. If you use the service frequently, i strongly recommend to register with [MapQuest](#) to use your own key. Be fair to the company that offers this free service!

### 1.2 `scale` (3385)

This option allows you to specify a display scale for the map image in the range of 1692 – 221871572. You will not necessarily see a difference between 5000 and 5500. A scale value of 3385 corresponds to a zoom level of 17.

### 1.3 `zoom`

This option allows you to specify a zoom level in the range of 1 – 18. This option overwrites a possibly given scale.

### 1.4 `xsize` (800)

This option specifies the width of the map in pixels. If you only want to slightly increase or decrease the map extract, you should adjust the size of the map. You still have full control over the size of the map in the document with the options of `\includegraphics`. (max: 3840)

### 1.5 `ysize` (400)

This option specifies the height of the map in pixels. max: 3840)

### 1.6 `file` (osmimage)

This option allows you to specify the name of the image (without extension).

**1.7 imagetype (png|jpeg|jpg|gif)**

This option allows you to specify the type of the image.

**1.8 type (map|sat|hyb)**

This option specifies the type of the map. It seems as if there were only a few regions of Mother Earth, for which satellite and hybrid images are available.

**1.9 color (yellow\_1)**

This option specifies the color of the marker.

Possible colors: <http://open.mapquestapi.com/staticmap/icons.html>

**1.10 number (1)**

This option specifies the number of the marker.

**1.11 inputencoding**

This option specifies the input encoding of your file. The download script requires the strings encoded in utf8. For the safe conversion the input encoding of the file is required. Normally, you don't have to specify an encoding. The package tries to evaluate the encoding given to inputenc or assumes utf8. Usually that should work.

**1.12 overwrite (false|true)**

With this option, you can specify whether the image should be downloaded in any case. By default, the option is set to false in order to save bandwidth and compilation time. Nevertheless a check is performed on the existence of the image and the image will be downloaded, if it is not present. In the case of true, the image will be downloaded anyway! BTW, overwrite is equivalent to overwrite=true.

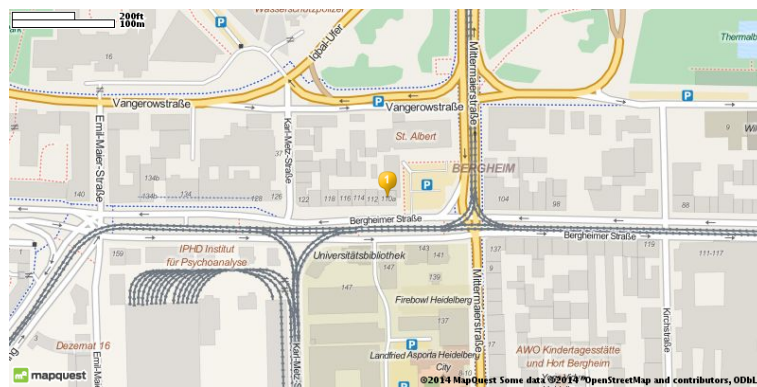
**2 Command(s)****2.1 \getmap**

`\getmap[<options>]{<address>}` With the \getmap command you can download a map, if you enable \write18 (TeXLive: -shell-escape, MiKTeX: --enable-write18). This is only necessary

if you actually download an image. You can use the options described above to specify the properties of the downloaded image. After executing the command, the image is available in the current working directory!

In the simplest case, you only need an address to download the map. By default, the image is saved under the name `osmimage.png`! If you need only one map (e.g. the office of Dante e.V.) in your document, it can be as simple as:

```
1 \getmap{Bergheimer Straße 110A, 69115 Heidelberg, Germany}  
2 \includegraphics[width=10cm]{osmimage}
```



### 3 Implementation

```
1 <{*package>
```

First, we provide the L<sup>A</sup>T<sub>E</sub>X package getmap.

```
2 \NeedsTeXFormat{LaTeX2e}%
3 \ProvidesPackage{getmap}[2014/05/25 v1.0 getmap.sty - Josef Kleber (C) 2014]%
```

We need a few packages!

```
4 \RequirePackage{xkeyval}%
5 \RequirePackage{stringenc}%
6 \RequirePackage{ifthen}%
```

We provide a macro `\GM@JK@define@key`, which defines package options with global scope and options for `\getmap` with local scope. It takes four arguments `{<prefix>}`, `{<package>}`, `{<option>}` and `{<default>}`.

```
7 \newcommand*\GM@JK@define@key[4]%
8 {%
9   \expandafter\gdef\csname#1@#3\endcsname{#4}%
10  \define@key{#2.sty}{#3}{#4}%
11  {%
12    \expandafter\gdef\csname#1@#3\endcsname{##1}%
13  }%
14  \define@key{#2}{#3}%
15  {%
16    \expandafter\def\csname#1@#3\endcsname{##1}%
17  }%
18 }%
```

Now, we can use this macro to define our options.

```
19 \GM@JK@define@key{GM@JK}{getmap}{key}{Kmjt|luu7n162n1,22=o5-h61wh}%
20 \GM@JK@define@key{GM@JK}{getmap}{xsize}{800}%
21 \GM@JK@define@key{GM@JK}{getmap}{ysize}{400}%
22 \GM@JK@define@key{GM@JK}{getmap}{scale}{3385}%
23 \GM@JK@define@key{GM@JK}{getmap}{zoom}{}%
24 \GM@JK@define@key{GM@JK}{getmap}{type}{map}%
25 \GM@JK@define@key{GM@JK}{getmap}{imagetype}{png}%
26 \GM@JK@define@key{GM@JK}{getmap}{color}{yellow_1}%
27 \GM@JK@define@key{GM@JK}{getmap}{number}{1}%
28 \GM@JK@define@key{GM@JK}{getmap}{file}{osmimage}%
29 \GM@JK@define@key{GM@JK}{getmap}{inputencoding}{}%
30 \GM@JK@define@key{GM@JK}{getmap}{overwrite}{true}%
```

For options without default value, we define reasonable default values! We overwrite the default for `overwrite`, because we don't want `overwrite` to be true by default, but that `overwrite` is equivalent to `overwrite=true`!

We try to use the input encoding specified for `inputenc` or `utf8` instead.

```
31 \gdef\GM@JK@overwrite{false}%
```

```

32 %
33 \@ifpackageloaded{inputenc}%
34 {%
35   \gdef\GM@JK@inputencoding{\inputencodingname}%
36 }%
37 {%
38   \gdef\GM@JK@inputencoding{utf8}%
39 }%
40 %

```

Later, we will need a switch, if `\write18` is enabled.

```

41 \newif\ifGM@JK@writexviii\GM@JK@writexviiiifalse%
42 %

```

We execute the package options to define and set the option macros.

```

43 \ExecuteOptionsX{key,xsize,ysize,scale,zoom,type,imagetype,color,number,file}%
44 %
45 \ProcessOptionsX\relax%
46 %

```

We check if `\pdf@shellescape` is available to test if `\write18` is enabled.

If false, we assume `\write18` is available and hope for the best.

If true, we set the switch `\GM@JK@writexviii` accordingly!

```

47 \ltx@ifundefined{pdf@shellescape}%
48 {%
49   \PackageInfo{getmap}{\pdf@shellescape is undefined}%
50   \PackageInfo{getmap}{can not test if \write18 is available}%
51   \GM@JK@writexviii>true%
52 }%
53 {%
54   \PackageInfo{getmap}{\pdf@shellescape is available}%
55   \ifnum\pdf@shellescape=1\relax%
56     \PackageInfo{getmap}{\write18 enabled}%
57     \GM@JK@writexviii>true%
58   \else%
59     \GM@JK@writexviii>false%
60   \fi%
61 }%

```

We define a macro that is executed as `\write18` call. First, we test if `\write18` is enabled and issue a package error if not! Otherwise we execute `\write18` depending on the existence of a zoom (zoom overrides scale).

```

62 \newcommand*\GM@JK@shellescape%
63 {%
64   \ifGM@JK@writexviii%
65     \ifthenelse{\equal{\GM@JK@zoom}{}}%
66     {%
67       \immediate\write18{osimage \space-l\space "\GM@JK@location@string"%
68                           \space-k\space "\GM@JK@key@string"%

```



```

69             \space-x\space \GM@JK@xsize%
70             \space-y\space \GM@JK@ysize%
71             \space-s\space \GM@JK@scale%
72             \space-t\space \GM@JK@type%
73             \space-i\space \GM@JK@imagetype%
74             \space-c\space "\GM@JK@color"%
75             \space-n\space \GM@JK@number%
76             \space-o\space \GM@JK@file}%
77   }%
78   {%
79     \immediate\write18{osmimage \space-l\space "\GM@JK@location@string"%
80     \space-k\space "\GM@JK@key@string"%
81     \space-x\space \GM@JK@xsize%
82     \space-y\space \GM@JK@ysize%
83     \space-z\space \GM@JK@zoom%
84     \space-t\space \GM@JK@type%
85     \space-i\space \GM@JK@imagetype%
86     \space-c\space "\GM@JK@color"%
87     \space-n\space \GM@JK@number%
88     \space-o\space \GM@JK@file}%
89   }%
90   \else%
91     \PackageError{getmap}{\write18 disabled}
92     {\write18 disabled\MessageBreak%
93     Use -shell-escape (TeXLive)\MessageBreak%
94     or\space\space--enable-write18 (MiKTeX)}%
95   \fi%
96 }%

```

`\getmap` Here, we define the user command to download the map.

```
\getmap[<options>]{<address>}
```

```

97 \newcommand*\getmap[2][]%
98 {%

```

We start a group to keep the setting of options local.

```

99   \begingroup%
100   \setkeys{getmap}{#1}%
101   \PackageInfo{getmap}{using \GM@JK@inputencoding\space encoding}%
102   \def\GM@JK@location{#2}%

```

Both, the bash as well as the Lua script need their string arguments encoded in utf8!

```

103   \ifthenelse{\equal{\GM@JK@inputencoding}{utf8}}%
104   {%
105     \def\GM@JK@location@string{\GM@JK@location}%
106   }%
107   {%
108     \StringEncodingConvert%
109     {\GM@JK@location@string}%

```

```

110     {\detokenize\expandafter{\GM@JK@location}}}%
111     {\GM@JK@inputencoding}{utf-8}%
112     \StringEncodingSuccessFailure%
113     {%
114         %success
115     }%
116     {% failure
117         \errmessage{Converting to UTF-8 failed}%
118     }%
119 }%
120 \ifthenelse{\equal{\GM@JK@inputencoding}{utf8}}%
121 {%
122     \def\GM@JK@key@string{\GM@JK@key}%
123 }%
124 {%
125     \StringEncodingConvert%
126     {\GM@JK@key@string}%
127     {\detokenize\expandafter{\GM@JK@key}}}%
128     {\GM@JK@inputencoding}{utf-8}%
129     \StringEncodingSuccessFailure%
130     {%
131         %success
132     }%
133     {% failure
134         \errmessage{Converting to UTF-8 failed}%
135     }%
136 }%

```

We check, if overwrite is true and download the map. If not, we check if the image is already in the working directory. If not, we download the image!

```

137     \ifthenelse{\equal{\GM@JK@overwrite}{true}}%
138     {%
139         \GM@JK@shellescape%
140     }%
141     {%
142         \IfFileExists{\GM@JK@file.\GM@JK@imagetype}%
143         {%
144             \PackageInfo{getmap}{overwrite=false; (\GM@JK@file.\GM@JK@imagetype)%
145                 using existing file!}%
146         }%
147         {%
148             \PackageInfo{getmap}{overwrite=false; (\GM@JK@file.\GM@JK@imagetype)%
149                 file does not exist! downloading ...}%
150             \GM@JK@shellescape%
151         }%
152     }%
153 \endgroup%
154 }%

155 \end{package}

```

## 4 References

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